

File No. 142-9

CALIPER GAUGE

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Cross Reference

[0001] This application relies on provisional patent application, Serial Number 06/468,755, filed 05/08/2003, for "Caliper Gauge" for priority.

Field of the Invention

[0002] Calipers of various types are used in woodworking shops and other trades and professions for setting dimensions. A caliper is adjusted with respect to a measuring standard, and then the caliper is taken to the workpiece to determine if the workpiece is to size. The caliper gauge of this invention is for accurately setting a caliper to a specific dimension or accurately measuring the span of a previously set caliper.

Background of the Invention

[0003] Calipers have been created in different configurations for different purposes. They have their use in a vast array of fields from architectural and engineering drafting to furniture making and measuring. They are used in machine-shop work and for measuring navigational maps and the like. The present method for measuring or setting a caliper is to lay it on a ruler and read the opening of the caliper against the ruler markings. This approach is very inaccurate, inconsistent and thus open to errors. A previously known device for setting outside calipers is called a "turning tree," which is a solid of revolution which has a plurality of decreasing cylinders of known diameters. Such a device is accurate when properly used, but it is difficult to assure that the caliper gauge tips are precisely set on the exact diameter. There is need for a gauge by which a caliper can be set accurately and accurately read.

Summary of the Invention

[0004] In order to aid in the understanding of this invention, it can be stated in essentially summary form that it is directed to a caliper gauge which has a plurality of measuring surfaces which are accurately spaced from each other. Each pair of these measuring surfaces is at a known distance apart. Associated with each measuring surface are two stop surfaces. The back stop prevents the caliper from leaving the measuring surface in one direction, and the adjacent step face prevents the caliper from leaving the measuring surface in another direction so that the

caliper gauge can be retained on the selected pair of measuring surfaces while the caliper is being adjusted.

[0005] It is, thus, a purpose and advantage of this invention to provide a caliper gauge which permits easy positioning of the caliper with respect to the gauge to hold the caliper in place while it is being adjusted.

[0006] It is another purpose and advantage of this invention to provide a caliper gauge which has a plurality of pairs of spaced measuring surfaces which are spaced a known distance and which have indicia related thereto so that the measurement therebetween can be quickly established.

[1007] It is another purpose and advantage of this invention to provide a caliper gauge of such construction that it can be placed on a base or secured against an upright so that it can be conveniently positioned adjacent to the place of desired measurement.

[1008] It is a further purpose and advantage of this invention to provide a caliper gauge which has two sets of pairs of measuring surfaces, with one set being positioned for inside measurement and the other set being positioned for outside measurement.

[1009] It is a further purpose and advantage of this invention to provide a simple and accurate caliper gauge for measuring and establishing the inside and outside measurement distances with any type of calipers.

[0010] Other purposes and advantages of this invention will be noted from the study of the following portion of the specification, the drawings and the attached claims.

Brief Description of the Drawings

[0011] FIGURE 1 is a perspective view from the front and slightly to the left and slightly above the caliper gauge of this invention.

[0012] FIGURE 2 is a left side view thereof.

[0013] FIGURE 3 is a front view thereof showing an inside caliper being set on the caliper gauge of this invention.

[0014] FIGURE 4 is a downwardly looking section, taken generally along the line 4-4 of FIGURE 3.

[0015] FIGURE 5 is a front view showing an outside caliper being set on the caliper gauge of this invention.

[0016] FIGURE 6 is a top view of the structure of FIGURE 5.

[0017] FIGURE 7 is a view similar to FIGURE 1 showing the caliper gauge mounted on a backboard.

Description of the Preferred Embodiment

[0018] The caliper gauge of this invention is generally indicated at 10 in FIGURES 1 through 7. The caliper gauge is comprised of a back plate 12 which has a substantially planar front surface 14. As will be later described, the front surface 14 acts as a stop to aid in the placement of the caliper being set with respect thereto. The back plate may be rectangular, but it is preferably in the shape of an inverted V, as shown in FIGURES 1, 3, 5 and 7.

[0019] Gauge body 16 is mounted on the front of the back plate. The gauge body 16 is in the form of an inverted V, but the inside and outside surfaces of the gauge body are in the form of stair steps. The stair steps are configured so that the lateral distance across the stair steps is a known value. It is these distances which are the reference distances to which the caliper gauge will be set. The gauge body 16 is seen to have these stair steps both on the inside and outside of the inverted V. FIGURES 3 and 4 show the inside stair steps are positioned to set an inside caliper. FIGURES 5 and 6 show how the outside stair steps are utilized to set an outside caliper. It is important to note that the step and gauge surfaces of each stair step plus the front of the back plate permit easy location of the fingers of the caliper. One cannot thrust these fingers too far back, beyond measuring range, because the back plate is present to limit position of the fingers in that direction. The adjacent step of the stair steps limits the caliper from being moved in the smaller direction for the inside caliper, see FIGURE 3, and prevents it from moving in the larger direction for an outside caliper, as seen in FIGURE 5. The caliper fingers are thus constrained by three different surfaces so that it is easy to properly position the caliper for its accurate setting.

[0020] In order to quickly identify the desired pair of gauge surfaces, the surfaces are marked in several ways. In the example shown in the drawings, the measurements are in the English system. The relationships could just as well be

established in the metric system. There is a plurality of steps, and the distance across these steps successively increases by 1/16 inch. The line 18, see FIGURE 1, indicates that the gauge surfaces at that line are a pair of gauge surfaces. The indicia 20 shows that the measuring surfaces are $\frac{1}{2}$ inch apart. The indicia 22 indicates that the measuring surfaces are .50 inch apart. Thus, the indicia down the left side of the scale are in fractions, and the indicia down the right side are in 1/100 of an inch. As an example, measuring surfaces 24 and 26 are 1-1/2 inches apart. The indicia "1-1/2" are shown on the left side, and the indicia "1.50" is shown on the right side. The step faces 28 and 30 are directly below the measuring surfaces and lead to the next step, which is 1/16 inch wider.

[0021] The indicia 32 and 34 indicate that the measuring surfaces are 1-1/2 inch apart, with suitable tolerances. The measuring surfaces directly thereabove are 1/16 inch closer and, thus, are 1-7/16 inches apart. The measuring surfaces directly below the surfaces 24 and 26 are 1/16 inch wider apart, and thus are 1-9/16 inches apart. This progression extends up and down the outside of the gauge body 16. Line 18 is the top indicator line, which visually aids in making sure that the proper pair of measuring surfaces is employed. Another of such indicator lines is indicated at 36 at the 1-1/2 inch measuring surface. It is also seen that such indicator lines are presented across the back plate 12 and across the gauge body at each four measuring steps. Indicia may be applied wherever helpful to aid the artisan in

selecting the correct pair of measuring steps. Other measuring step intervals than the measuring steps of this example which are progressively 1/16 inch larger than the previous pair of steps, can be utilized.

[0022] The indicator lines extending across the face of the back plate and across the face of the gauge body aid in selecting the desired pair of measuring surfaces. This arrangement is suitable for setting an outside caliper 38, as seen in FIGURES 5 and 6. The fingers of the caliper are placed on the larger step face adjacent the selected measuring surface. The fingers of the outside caliper are rested against the front surface 14 of the back plate. The caliper is then adjusted so that the fingers touch the selected measuring surfaces with the correct amount of resistance to achieve accurate setting of the caliper 38.

[0023] In addition to the outside measuring surfaces just described, which are suitable for the setting of outside calipers, the gauge body is provided with a plurality of stepped inside measuring surfaces. These inside measuring surfaces face each other and are a known distance apart. Measuring surfaces 40 and 42 are shown in FIGURE 1 as facing each other. These surfaces are in step relationship to a plurality of such pairs of measuring surfaces. Each of the pairs of measuring surfaces is a known distance apart so that an inside caliper 46 can be adjusted with respect thereto. The inside caliper 46 is shown in FIGURES 3 and 4. The measuring location is defined by these measuring surfaces, the adjacent step to the next smaller

measuring surface and the front surface of the back plate. Thus, the fingers of the inside caliper 46 can be easily and securely engaged and retained on the selected pair of measuring surfaces. Indicia 48 and 50 shown in FIGURE 1 indicate the dimension between these measuring surfaces. It is convenient to have the indicator lines 18 and 36 extend all the way across so that the selected pair of measuring surfaces can be more easily found.

[0024] In order to place the caliper gauge 10 at a location where it is convenient, it is provided with a base 52. The base 52 has a slot 54 therein which is sized to receive the back plate and gauge body. The base is sufficiently wide to permit the caliper gauge to stand upright, as seen in FIGURE 1. For an additional mounting opportunity, the back plate 12 has screw holes 56 and 58 therein. This permits the back plate with its gauge body to be attached to a back board 60 shown in FIGURE 7. The back board 60 may be attached to a wall or post by means of screws 62 and 64. As an alternative to the back board 60, the back plate 12 and gauge body can be attached directly to a post, a machine tool or to the end of a tool box by means of screws 66 and 68. Thus, it is clear that the caliper gauge 10 provides an easily used caliper setting tool which can be placed or secured conveniently to the function at which calipers need to be quickly and accurately set.

[0025] This invention has been described in its presently preferred embodiment, and it is clear that it is susceptible to numerous modifications, modes and embodiments within the ability of those skilled in the art and without the exercise of the inventive faculty. Accordingly, the scope of this invention is defined by the scope of the following claims.